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What is claimed is:

1. An apparatus for movement of a lumbar support, comprising:

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a flexible supporting element adapted to be coupled to a seat for movement relative thereto; and

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driving means for automatically moving said flexible supporting element through an adjustment cycle that begins at a first position, then makes a first movement in a first direction to a second position, then makes a second movement in a second direction to a third position, then moves in said first direction again.

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2. The apparatus for movement of a lumbar support of claim 1 wherein said first movement in said first direction and said second movement in said second direction are repeated in plurality of cycles.

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3. The apparatus for movement of a lumbar support of claim 2 wherein said plurality of cycles stop automatically after a pre-configured time interval.

4. The apparatus for movement of a lumbar support of claim 1 wherein said movements are without pause.

5. The apparatus for movement of a lumbar support of claim 1 wherein each of said movements are separated by a pause.

6. The apparatus for movement of a lumbar support of claim 5 wherein each of said pauses are about three seconds.

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7. The apparatus for movement of a lumbar support of claim 1 wherein said first direction and said second direction are substantially opposite.

8. The apparatus for movement of a lumbar support of claim 1 wherein said first position and said second position are at least 4 millimeters apart.

- 5 9. The apparatus for movement of a lumbar support of claim 1 wherein said
second position and said third position are at least 8 millimeters apart.
10. The apparatus for movement of a lumbar support of claim 1 wherein said
second position and said third position are 12 millimeters apart.
- 10 11. The apparatus for movement of a lumbar support of claim 1 wherein said
second movement from said second position to said third position is in a range
from about 10 seconds long to about 25 seconds long.
12. The apparatus for movement of a lumbar support of claim 1 wherein said
lumbar support is a push paddle.
13. The apparatus for movement of a lumbar support of claim 1 wherein said
lumbar support is a flexible wire mat.
- 15 14. The apparatus for movement of a lumbar support of claim 1 wherein said
driving means includes a traction cable and said flexible supporting element is
an arching pressure surface.
- 20 15. The apparatus of claim 1 wherein said driving means include an electric motor
and a control module, said electric motor coupled to said supporting element,
said control module coupled to said electric motor and electrically connectable
to a power source, said electric motor adapted to move said supporting element
in said first direction when provided with an electric current of a first polarity
and to move said supporting element in said second direction when provided
with an electric current of a second polarity.
- 25 16. The apparatus of claim 15 wherein said control module is adapted to
automatically communicate a plurality of electric currents to said electric motor

5 whereby said electric motor moves said supporting element through said
adjustment cycle, said control module further including polarity switching
means for providing a first polarity connection between said power source and
said electric motor when said control module communicates said electric
current of a first polarity to said electric motor and for providing a second
10 polarity connection between said power source and said electric motor when said
control module communicates said electric current of a second polarity to said
electric motor.

17. An apparatus for automatically moving a supporting element in a seat in a first
direction and a second direction according to an adjustment cycle, said
15 apparatus comprising:
a driving assembly having an output movable in said first direction and said
second direction, said output adapted to be connected to said supporting
element in said seat;
20 a power source;
a current controller communicable with said power source for generating current
for a pre-configured cycle time;
25 a switch for automatically establishing a first polarity connection and a second
polarity connection between said current regulating means and said driving
apparatus, said switch communicating a plurality of current flows from said
current regulating means to said driving apparatus through said first polarity
30 and second polarity connections whereby said driving apparatus moves said
output in said first direction and said second direction according to said
adjustment cycle.

18. The apparatus of claim 17 wherein said controller further includes a position
indicator and a memory,
35 said position indicator communicating with said driving assembly and said
memory,

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said drive assembly defining a first position when said adjustment cycle is initiated,

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said controller defining a second and third positions relative to said first position,

said position indicator being adapted to communicate said first position of said drive assembly to said memory when said adjustment cycle is initiated,

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said memory storing said first position,

said position indicator being adapted to communicate a plurality of positions of said drive assembly to said controller,

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said controller communicating to said switch said first polarity and said controller communicating to said drive assembly said current between said first position and said second position, then said controller communicating to said switch said second polarity and said controller communicating to said drive assembly said current between said second position and said third position, then
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said controller communicating to said switch said first polarity and said controller communicating to said drive assembly said current between said third position and said second position,

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said controller adapted to retrieve said initial position from said memory and return said driving assembly to said first position when said adjustment cycle is cancelled.

19. A method of relieving muscle fatigue in a seat occupant comprising:

adjusting the curvature of a supporting element;

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placing said supporting element in a first position operatively engaging a muscle of the seat occupant wherein the first position defines a first degree of curvature of the supporting element;

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adjusting the curvature of the supporting element according to an adjustment cycle comprising

starting at said first degree of curvature;

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increasing the degree of curvature a first amount to define a second degree of curvature then;

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decreasing the degree of curvature of the supporting element a second amount to define a third degree of curvature; and

increasing the degree of curvature from said third degree of curvature back to said second degree of curvature.

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20. The method of claim 20 wherein said in said steps of decreasing the degree of curvature of the supporting element a second amount to define a third degree of curvature and increasing the degree of curvature from said third degree of curvature back to said second degree of curvature are repeated a plurality of times.

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21. The method of claim 19 wherein said repeating steps automatically stop after a pre-configured period of time.

22. The method of claim 19 further comprising the steps of pausing between each of said steps.

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23. The method of claim 19 wherein said second degree of curvature and said third degree of curvature are substantially 12 millimeters apart.

24. The method of claim 19 wherein each of said increasing and decreasing steps between said second degree of curvature and said third degree of curvature are substantially 10 to 25 seconds long.

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25. An apparatus for movement of a lumbar support, comprising:

a flexible supporting element adapted to be coupled to a seat for movement relative thereto; and

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a driver for automatically moving said flexible supporting element through an adjustment cycle that begins at a first position, then makes a first movement in a first direction to a second position, then makes a second movement in a second direction to a third position, then moves in said first direction again.

- 5 26. The apparatus for movement of a lumbar support of claim 25 wherein said first movement in said first direction and said second movement in said second direction are repeated in cycles.
- 10 27. The apparatus for movement of a lumbar support of claim 26 wherein said cyclic movement stops automatically after a pre-configured time interval.
28. The apparatus for movement of a lumbar support of claim 25 wherein said movements are without pause.
29. The apparatus for movement of a lumbar support of claim 25 wherein each of said movements are separated by a pause.
- 15 30. The apparatus for movement of a lumbar support of claim 29 wherein each of said pauses are about three seconds.
31. The apparatus for movement of a lumbar support of claim 25 wherein said first direction and said second direction are substantially opposite.
32. The apparatus for movement of a lumbar support of claim 25 wherein said first position and said second position are at least 4 millimeters apart.
- 20 33. The apparatus for movement of a lumbar support of claim 25 wherein said second position and said third position are at least 8 millimeters apart.
34. The apparatus for movement of a lumbar support of claim 25 wherein said second position and said third position are 12 millimeters apart.
- 25 35. The apparatus for movement of a lumbar support of claim 25 wherein said movement from said second position to said third position is in a range from about 10 seconds long to about 25 seconds long.

- 5 36. The apparatus for movement of a lumbar support of claim 25 wherein said lumbar support is a push paddle.
37. The apparatus for movement of a lumbar support of claim 25 wherein said lumbar support is a flexible wire mat.
- 10 38. The apparatus for movement of a lumbar support of claim 1 wherein said driving means includes a traction cable and said flexible supporting element is an arching pressure surface.
39. The apparatus of claim 25 wherein said driver includes an electric motor and a controller, said electric motor coupled to said supporting element, said controller coupled to said electric motor and electrically connectable to a power source, said electric motor adapted to move said supporting element in said first direction when provided with a current flow in a first polarity and to move said supporting element in said second direction when provided with a current flow in a second polarity.
- 15 40. The apparatus of claim 39 wherein said controller is adapted to automatically communicate at least two current flows to said electric motor whereby said electric motor moves said supporting element through said adjustment cycle, said communication of said at least two current flows further being alternately selected by a polarity switch between a first current flow by a first polarity connection from said power source to said electric motor when said controller communicates a first of said at least two current flows to said electric motor and a second current flow by a second polarity connection from said power source to
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5 said electric motor when said controller communicates a second of said at least two current flows.

41. An apparatus for automatically moving a supporting element in a seat in a first direction and a second direction according to an adjustment cycle, said apparatus comprising:

10 a driving assembly comprising:

 an archable support element;

15 a traction actuator operatively engaged with said archable support element;

 an output movable in said first direction and said second direction, said output being in actuating engagement with said traction actuator;

20 a motor in driving engagement with said traction actuator;

 a power source powering said motor;

25 a current controller communicable with said power source for generating current for a pre-configured cycle time;

30 a sensor that monitors the position of said support element, said sensor being in communication with said driving assembly and said current controller to stop said automatic moving in said first direction or in said second direction at pre-configured positions; and

35 a switch for automatically establishing a first polarity connection and a second polarity connection between said current controller and said driving apparatus, said switch communicating a current from said current controller to said driving apparatus through said first polarity and second polarity connections whereby said driving assembly moves said output in said first direction and said second direction according to said adjustment cycle;

40 whereby said output of said driving assembly engages said traction actuator to move said archable support element from a first position to a second position and from said second position through said first position to a third position and to repeat said movements between said second position and said third position until stopping said movements after said pre-configured cycle time.

5 42. The apparatus of claim 41 further comprising:

10 a stall sensor in monitoring engagement with said motor and in communication with said driving assembly such that stalling of said motor at a mechanical limit of said archable support element ends a movement in either of said first direction or said second direction, switches from one of said first or second polarity to the other of said first or second polarity, and reinitiates current.

15 43. An apparatus for movement of a lumbar support, comprising:

 a flexible supporting element adapted to be coupled to a seat for movement relative thereto; and

20 a driver for automatically moving said flexible supporting element through an adjustment cycle that begins at a first position, then makes a first movement in a first direction to a second position, then makes a second movement in a second direction through said first position to a third position, then moves in said first direction again.

25 44. A data structure embodied in a machine readable storage medium controlling a lumbar support flexion cycle comprising:

 an instruction to initialize a memory with a first, second and third position upon a user selection of a first position, said second and said third positions being on opposite sides of said first position;

 an instruction to move from said first position to said second position;

30 an instruction to move from said second position to said third position;

35 45. The data structure of Claim 35 further comprising;

 an instruction to continue moving between said second and said third positions.

40 46. The data structure of Claim 35 further comprising;

 an instruction to stop moving between said second and said third positions after a pre-configured period of time.

45 47. The data structure of Claim 35 further comprising;

 an instruction to pause between each of said movements from said second position to said third position and each of said movements from said third position to said second position.

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48. A cyclic lumbar support pattern comprising:
- 10 a first movement six millimeters in a first direction;
- a second movement 12 millimeters in a second direction; and
- 10 a third movement 12 millimeters in said first direction.
49. The cyclic lumbar support pattern of claim 48 wherein said second and third movements repeat.
- 15 50. The cyclic lumbar support pattern of claim 48 further comprising:
- a pause between each of said movements.
51. The cyclic lumbar support pattern of claim 48 further comprising:
- a cancellation of cycling after a pre-configured time period.
52. A lumbar support movement cycle pattern stored via machine readable storage
- 20 media, said stored pattern comprising:
- a first plurality of binary values that initialize a memory register with a selected first position of a support element of said lumbar support;
- 25 a second plurality of binary values that calculate and store in a memory register a second position and a third position for said support element of said lumbar support, said second position being a pre-configured distance on one side of said first position and said third position being a pre-configured distance on the other side of said first position;
- 30 a third plurality of binary values that compare said memory registers of said first, second and third positions to a plurality of position indications from a position sensor;
- 35 a fourth plurality of binary values that close a polarity switch to create a current flow driving said support element of said lumbar support from said first position to said second position;
- 40 a fifth plurality of binary values to maintain said support element of said lumbar support at said second position for a pre-configured time period;

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a sixth plurality of binary values that reverse said polarity switch and create a second flow of electric current to move said support element of said lumbar support from said second position to said third position; and

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a seventh plurality of binary values to maintain said support element of said lumbar support at said third position for a pre-configured period of time.

53. The article of manufacture of claim 52 further comprising:

an eighth plurality of binary values that repeat movements between said second position and said third position for a pre-configured period of time.

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54. The article of manufacture of claim 52 wherein said second position and said third position are at least 12 millimeters apart.

55. The article of manufacture of claim 52 wherein said storage media is a transistor configured integrated chip.

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